

International IOR Rectifier

Ultrafast Rectifier

MURS120PbF

Features

- Ultrafast Recovery Time
- Low Forward Voltage Drop
- Low Leakage Current
- 175°C Operating Junction Temperature
- Lead-Free ("PbF" suffix)

$$I_{F(AV)} = 1.0\text{Amp}$$

$$V_R = 200\text{V}$$

Description/ Applications

International Rectifier's MUR.. series are the state of the art Ultra fast recovery rectifiers specifically designed with optimized performance of forward voltage drop and ultra fast recovery time.

The planar structure and the platinum doped life time control, guarantee the best overall performance, ruggedness and reliability characteristics.

These devices are intended for use in the output rectification stage of SMPS, UPS, DC-DC converters as well as free-wheeling diode in low voltage inverters and chopper motor drives.

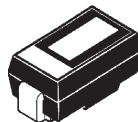
Their extremely optimized stored charge and low recovery current minimize the switching losses and reduce over dissipation in the switching element and snubbers.

Absolute Maximum Ratings

Parameters	Max	Units
V_{RRM} Peak Repetitive Peak Reverse Voltage	200	V
$I_{F(AV)}$ Average Rectified Forward Current, $T_L = 158^\circ\text{C}$	1	A
I_{FSM} Non Repetitive Peak Surge Current	40	
T_J, T_{STG} Operating Junction and Storage Temperatures	- 65 to 175	$^\circ\text{C}$

Case Styles

MURS120PbF



SMB



Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

Parameters	Min	Typ	Max	Units	Test Conditions
V _{BR} , V _r Breakdown Voltage, Blocking Voltage	200	-	-	V	I _R = 100μA
V _F Forward Voltage	-	0.83	0.875	V	I _F = 1A
	-	0.65	0.71	V	I _F = 1A, T _J = 150°C
I _R Reverse Leakage Current	-	0.1	2	μA	V _R = V _R Rated
	-	11	50	μA	T _J = 150°C, V _R = V _R Rated
C _T Junction Capacitance	-	12	-	pF	V _R = 200V

Dynamic Recovery Characteristics @ T_J = 25°C (unless otherwise specified)

Parameters	Min	Typ	Max	Units	Test Conditions
t _{rr} Reverse Recovery Time	-	-	35	ns	I _F = 1.0A, di _F /dt = 50A/μs, V _R = 30V
	-	-	25		I _F = 0.5A, I _R = 1.0A, I _{REC} = 0.25A

Thermal - Mechanical Characteristics

Parameters		Min	Typ	Max	Units
T _J	Max. Junction Temperature Range	-	-	175	°C
T _{Stg}	Max. Storage Temperature Range	- 65	-	175	
R _{thJL}	Thermal Resistance, Junction to Lead	-	-	21	°C/W
Wt	Weight	-	0.1	-	g
		-	0.07	-	(oz)
wt	Approximate Weight	0.10 (0.003)			g (oz.)
	Case Style	SMB			
	Device Marking	IRU120			

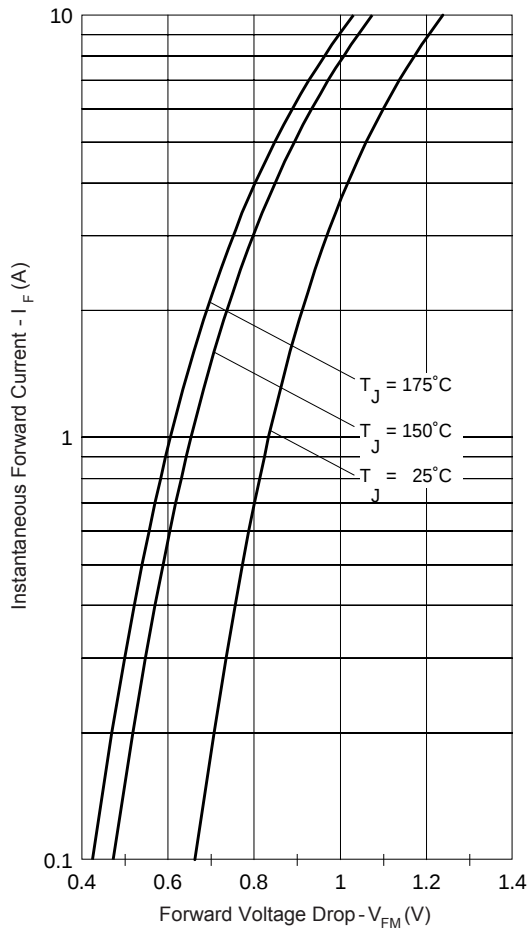


Fig. 1 - Typical Forward Voltage Drop Characteristics

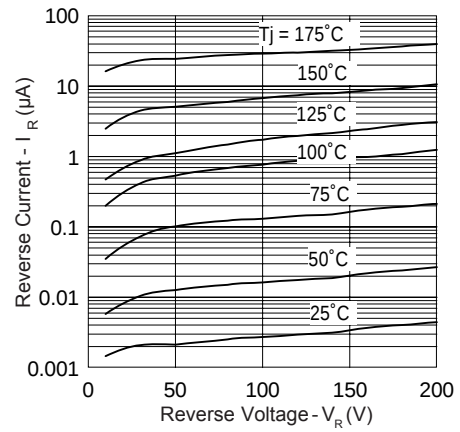


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

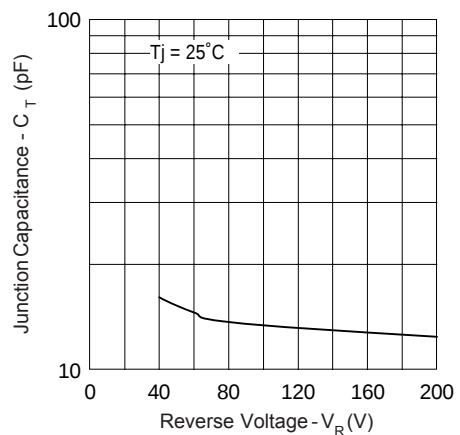


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

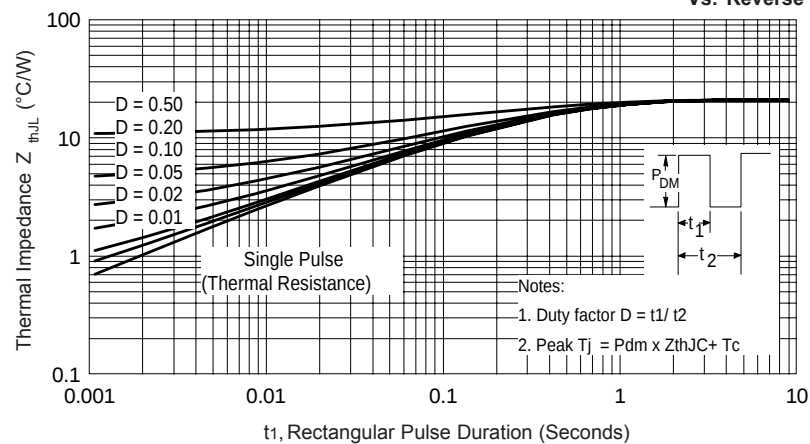


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics

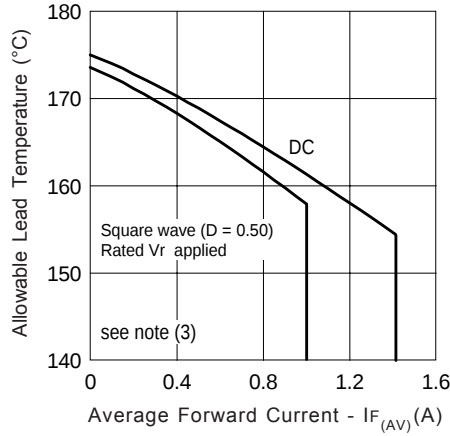


Fig. 5 - Max. Allowable Lead Temperature Vs. Average Forward Current

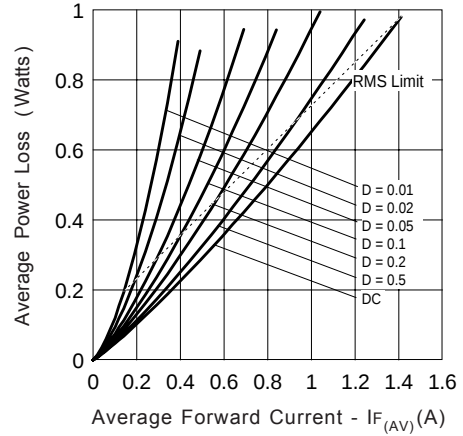


Fig. 6 - Forward Power Loss Characteristics

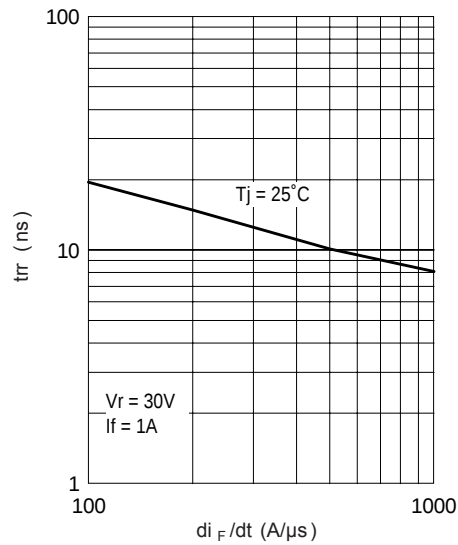


Fig. 7 - Typical Reverse Recovery vs. di_F / dt

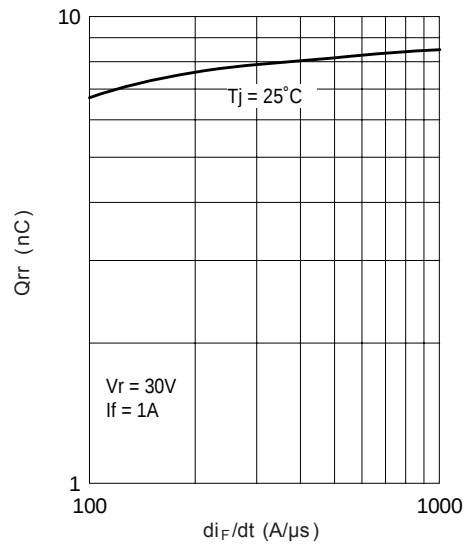


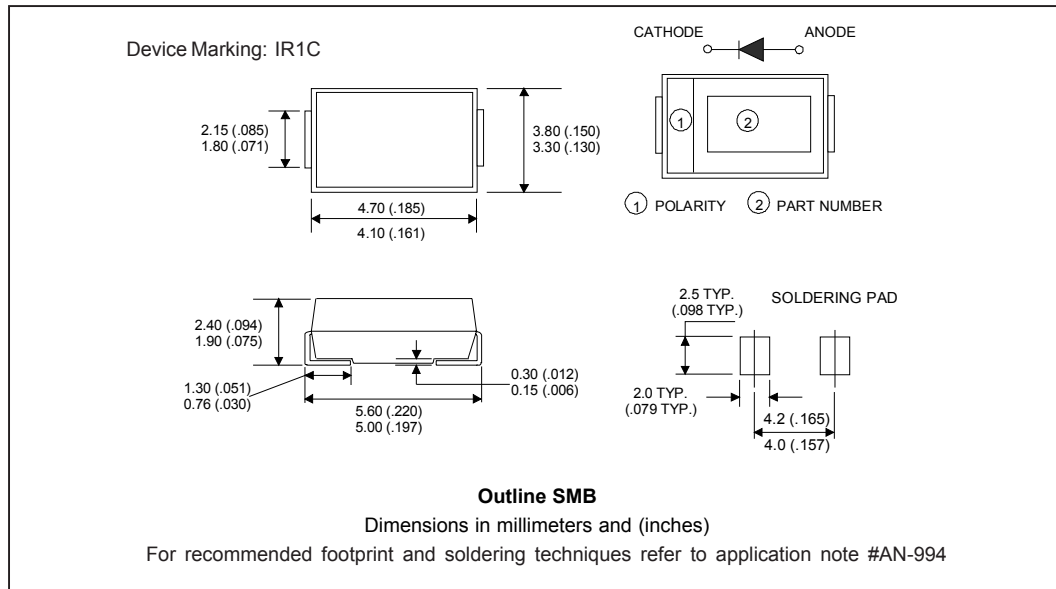
Fig. 8 - Typical Stored Charge vs. di_F / dt

(3) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$;

P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

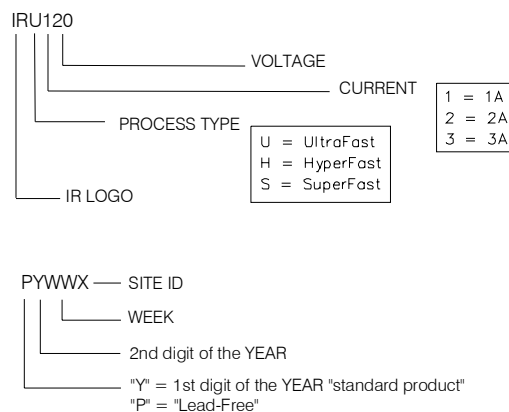
$P_{d_{REV}}$ = Inverse Power Loss = $V_{R1} \times I_{R1} (1 - D)$; $I_{R1} @ V_{R1}$ = rated V_R

Outline Table

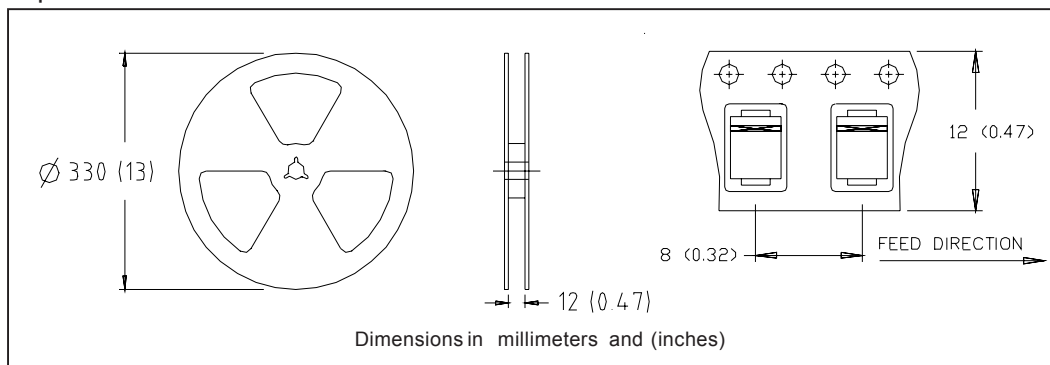


Marking & Identification

Each device has 2 rows for identification. The first row designates the device as manufactured by International Rectifier, indicated by the letters "IR", and the Part Number (indicates the current, the voltage rating and Schottky Generation). The second row indicates the year, the week of manufacturing and the Site ID.



Tape & Reel Information



Ordering Information Table

Device Code					
MUR	S	1	20	TR	PbF
1	2	3	4	5	6
1	-	Ultrafast MUR Series			
2	-	Package Style: SMB			
3	-	Current Rating (1 = 1A)			
4	-	Voltage Rating (20 = 200V)			
5	-	• none = Box (1000 pieces)			
		• TR = Tape & Reel (3000 pieces)			
6	-	• none = Standard Production			
		• PbF = Lead-Free			

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level and Lead-Free.
Qualification Standards can be found on IR's Web site.

International
IR Rectifier

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Visit us at www.irf.com for sales contact information. 11/04